



Investigating the Relationship Among Some Macro Economical Variables With Aggregated Stock Exchange Prices

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Abstract. The current study was carried out to determine the long-term relationship between the rate of indices increase total stock prices and an array of macro economical variables such as inflation rate, rate of liquidity growth, and rate of coins and oil exports. The required data were predicted periodically for the time interval of 1383-1393, in Iranian calendar, through regression test. In addition, seasonal changes were analysed too.

The results of study indicated that variables of rate of liquidity increase and the rate of growth for total prices index were constant, whereas by adding other variables and investigating Q-STATA test it was observed that explanatory variables possess correlational ranking of the first and fourth respectively. Investigating the seasonal effects of data by means of explanatory proved the fact that the effect of spring in increasing total indices prices in stock market, by holding the effects of other variables constant, indicated the approximate increase of 371.8. One of the other performed investigation was the effect of failure in data model. The results of Chav Test showed that a failure occurred in the first three months of 1389 in regression model. One of the underlying reasons concerned economical happenings such as consigning governmental corporations in stock market on the basis of Article 44 and other factors such as increasing assigned facilities from the part of the bank.

Keywords: Macro Economical Variables, Market Total Prices Index, Securities Premium Theory, Arbitrazh Evaluating Theory

Introduction

One of the basic and influential economical markets in every country is financial market. Stock market, which is regarded as a center to collect savings and private section liquidity, is one of the important components in financial market. Recently, the issue of investigating the effect of macro economical variables on stock markets has become a desirable topic for scholars and investors. Generally, it is believed that stock prices is determined by some macro economical variables such as inflation rate, interest rate, liquidity amount. There are many researches to investigate the effects of economical impetuses on the outcome of stock market in many countries the most important of which we can point to the application of Arbitrazh Appraisal Theory by Ross (1976), Chen et al (1986) to account for the effect of some macro economical variables on the stock market output in the United States of America. Their findings indicated that industrial products, changes in risk taking, fluctuations in periodical structure all have positive relationship with expected yields of stock markets meanwhile the relationship between the rate of predictor and unpredicted inflation with intended yields of stock market was negatively significant. The results of other researches that are presented in research literature indicated the effectiveness of economical variables on stock market.

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Research Purposes

Scientifically speaking , current study purposes are as follow :

1. Determining the long-term relationship between rate of increase in total stock market index and macro economical factors such as inflation rate, liquidity increase rate, currency prices, coin prices, daily oil export extent .
2. Investigating seasonal effects on fluctuation in index of total stock market prices.
3. Investigating tentative assumed model and determining the possible failure point in the model
4. Helping to specify and determine macro economical policies particularly fiscal, financial policies, and those policies related to Bourses of securities in Tehran Bonds Market.

Research Theoretical Foundations:

Generally speaking the underlying theoretical foundations of the study are as follow:

Securities Basket Theory

Securities basket is an asset baskets that is held by investor combined with different financial assets. As people take possession of different combinations of cash money, securities, bank savings, bonds, gold and currencies in their financial assets baskets, the fluctuations in money extent, currency value, inflation rate, bank interest rate can influence each person's demands to preserve above-mentioned asset which accordingly, by itself, can affect stock prices.

In 1950 Harry Markowitz presented a fundamental model of Valuable bond model officially. This model was the foundation of modern securities theory in the market. Preceding it , investors were familiar with concepts such as risk and yield and know that variety is appropriate and all eggs mustn't be put in a specific basket but they were not able to measure it . According to "Mean-Variance " theory of Marchovits (1959), investors should seek for a bond basket that is effective in front line (Front line is a line that is tangential to a set of investing opportunity in a way that it includes the maximum advantage by means of minimum risk. A particular bond basket is effective only when other baskets with the most expected outcome and minimum standard deviation or more expected outcome and the same standard deviation, or the same expected outcome but less standard deviation does not exists.

William F.sharp(1964) and Lint Ner (12965) on the basis of research done by Microsites, believe that there are two kinds of bonds market risks . The first one concerns with features of corporations that is called specific or systematic (Beta Index). The second kind is concerned with total market and is called unsystematic risk . This theory is known as asset appraisal theory.

The main premise in this model is that variety in every type of bond market is the result of market factors. This premise makes it possible that instead of all types of variables in every valuable bond , only one factor is used as market factor. Investment variety in securities baskets can cancel unsystematic risk and only systematic risks will remain at disposal.

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Arbitrage Pricing Theory

Stephan Ross (1976) has presented Arbitrage pricing Theory as a replacement for investment assets pricing model. The latter theory has commenced its starting point as how can investors start an efficient investment basket meanwhile the latter. Arbitrage Pricing Theory, views the risk and measurement from a very different perspectives and does not seek for ways investment working baskets. But it is based on the fact that stock prices are moderated as the investors are seeking for arbitrage profits. When Arbitrage profits disappear, the stock prices are said to be in balanced position. The definition of market efficiency signifies the absence of Arbitrage position. Proponents of Arbitrage Pricing theory contend that this model includes two main advantages compared with capital assets pricing model. First that Arbitrage Pricing Theory presents some assumptions concerning priority of investors than risk and yield which some believe include less restrictions. Second, this model can not be a valid model practically. The main point concerning Arbitrage Pricing Theory is recognizing affective variables and differentiating predicted changes from unpredicted ones in measurement sensitivity (Fisher and Jordan, 1991).

Unlike Capital Assets Model, it makes it possible to make use of more than one risk factor. Arbitrage Pricing Theory has attributes real yields of the securities as a function of economic variables. All in all, it is claimed that security prices are determined by some macro economical variables such as currency prices, inflation rate, and so on. A number of researches done to show the effect of economical impetuses on the outcome of stock markets in different countries. Arbitrage Pricing Theory was used by Ross (1976) and Chen at all to expound the influence of some macro economic variables on the outcomes of stock markets in America whose results indicated that industrialized products, Fluctuations in risk per se, and changes in periodical structures has positive relationship with expected outcomes of stock markets meanwhile the relationship between predicted inflation rate and unpredicted rate with the outcome of expected stocks was negatively significant. Roll and Ross (1984, 1980) and Chen at all (1986) contended that reality lies in five economical factors and different stocks may indicate different sensitivity to these systematic factors and that these factors encompass the basic portion of stock prices risk.

These factors are stated as follow :

- Fluctuations in predicted inflation rate
- Unpredicted changes in inflation
- Unpredicted changes in industrialized products
- Unpredicted changes in outcome till detracted deadline between borrowed securities, second-hand securities and prominent securities.
- Unpredicted changes in yields till detracted deadline between long-term and short-term bonds.

The first three factors can affect cash flows of economic agency and accordingly stock benefits and its increase, while the second two factors affect deflation rate, in other words securities evaluation (4).

According to Roll and Ross The Beta of the Capital Assets Pricing Model involves some restrictions in appraising risk. A number of securities may have identical Beta but different risk factors. Therefore in the cases where investors take notice of risk factors, Capital Assets Pricing Model is an appropriate model in predicting intended yield rate. According to Chen (1994), administered tests concerning Arbitrage Pricing Model indicated that the theory outperforms Capital Assets Pricing Model. In the light of current understanding of Arbitrage Pricing Theory, we can develop a model to predict the relationship between stock price and factors by the virtue of a model functioning according to economical factors and postulating the conditions that stock market acts ideally.

Inflation Rate

In inflation conditions nominal profits of the corporation, after passing of the time, without being accompanied with any considerable real profits can increase dramatically. So increasing inflation rate can lower real profits of the corporation and lower inherent value of the stock. On the other side, increasing inflation rate is accompanied by increase in expected benefits of the investors. Accordingly, depreciation rate of cash flows and wasted opportunities of the money can both increase. So it is expected that there would be a positive relationship between increasing inflation rate and stock profits in one hand and accordingly the stock total price index.

- Currency Rate

Currency rate regarded as one of the effective economical variables in developing countries. Regarding the fact that corporations and institute in developing countries fulfill their requirements through importing merchandises from developed countries, fluctuation in currency value is taken into consideration as one of the effective variables in increasing and clearing of the debts.

Increasing currency prices can, in one hand, lead to mounting foreign debt and increasing in final process of imported products and presented prices on the other hand. Concerning the fact that increase in debt of the corporation can result in falling in liquidity that accordingly brings about and involves falling in liquidity of economical agencies and has adverse effect in profit distribution, stock yields and price index, it can bring about falling in peripheral profits of the corporation, falling in prices and profits of the corporations and the last but not the least, falling in stock indices.

Liquidity Growth Rate

According to Money Inflation Theory, continuous increase in liquidity with the pace greater than denominator of multiplying income growth rate by increasing demand for money are regarded as requirements for continuous inflation. On the other side of the coin, some believe that liquidity increase can enhance the demand for investing in general and stocks in particular.

So relationship between liquidity and indices should be positive. However, the assumption can be correct only when liquidity increase can lead to developing investment opportunities and productivity. Talking into account the fact that in Iran economical infrastructures to attract investment in production sections is not adequate and appropriate and instead of spending liquidity in productive affairs it is spent on wrongdoing, generally increasing in liquidity extent can bring about increase in demands and current expenses. Since the researches on Money Inflation Theory indicated the, in Iran, liquidity increase is not accompanied with increase in Gross Domestic Production and it is an intensifying factor in inflation, it seems that relationship between liquidity increase rate and stock markets indices is a positive one.

Coin Pricing

Coin pricing was investigated in current study since in current market position it is a rival for investment in the stock market. In fact as the increase in the coin price and attractive outcome of this market is accompanied with increase in liquidity, it can be conceived that public acceptance is enhancing in conjunction with liquidity. It can be imagined that public acceptance is falling with regard to stock market. But this is a public and general perspective as the creation of prospective gold and the very fact that like currency, coin is a good that has investment potentiality and these two factors have reverse relationship, it is expected that a positive relationship exist between stock index growth and fluctuations in coin price.

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Oil Export Extent

This variable can be proper replacement for oil incomes. Its effect on fluctuations in the total stock index can be stated in such a way that increasing oil price can lead to increase in Gross National Production for exporting countries. But it should be borne in the mind that final consumers of the products and oil by-products are mainly developing countries. Since the oil exporting countries don't have advanced technologies and facilities in extracting crude oil, are among the importing countries of the oil by-products. So increasing oil prices results in net prices of all manufactured products from the part of developed countries which accordingly lead to increasing real value of the imported products in developing countries including Iran.

Therefore it is expected that increasing in oil products can bring about total stock price index increases as well.

Research Literature

Exploring the relationship between economical factors and outcome of stocks has been given a lot of thought from early days. In this section, the research background of some carried out research with regard to relationship between economical factors and pricing, yield, and finally stock market index is to be presented.

Foreign research

Goltking (1983) that if time serial data is applied, in most countries the relationship between real outcome (yield) of the stocks and inflation will be negative (4). The results of research by Selink (1983) indicated that on eight countries out of total nine investigated countries, there was a positive relationship between two variables, stock yields and inflation rate. So Fisher Theory regarding the fact that real yield of stocks is independent from inflation measures and expectations was rejected (5).

In addition, Benderly and Swick (1985) found a negative correlation between real yields of market and inflation rate (5).

Mayasmai and Koh (2000) using Johanson multiple variables analysis in Error Removing Model, a long-term relationship between Singapore Stock Market index and a set of macro economical variables was investigated. They found the changes in two variables, real economic activities and industrialized products, commercial trading along with fluctuations in the market are not coincident whereas the fluctuations in Singapore Stock Market Index and changes in prices level, money supply, short-term and long-term interest rate are not coincident. In this coincident relationship, fluctuations in currency pricing and interest rate along with the changes in money supplying and prices level were effective. The results of the current research showed that Singapore Stock Market is sensitive to fluctuations in currency prices and short-term and long-term interest rate.(7)

Andreas Humpe and Peter D. Macmillan (2004) using coincident analysis of variables, investigated the long-term relationship between industrialized products, consumer price index, money supplying, long-term along with short-term interest rate and the prices of stocks in New York Stock Market comparatively. The results of research implied a positive relationship between industrialized products, short-term interest-rate whereas a negative relationship between long-term interest rate in America's Stock Market. In Japan's Stock Market, industrialized products have smaller positive index than that of America. However, the index for consumers' price was greater in Japan than America. All in all, the results of the researches were in line

with this theory that fluctuations in products yield affects currenr cash flow and future performance of the corporations. In addition it had a positive effects on Market as well. (6)

Native Research in Iran:

Firozeh Azizi, in a study, investigated and tested the relationship between inflation rate and stock yields rate in Tehran Stock Markets and Securities. The results of study indicated that inflation rate can be an explanatory variable for cash yields index and total yields but it can not caoount for stock prices index. On the other hand cash yielding, total yield and stock price index are not explanatory for inflation . The findings are in line with the findings of cause-and- effect research by Garengeri concerning price yield, total yield, and Stock price index. (2)

Mostafa Karimzadeh (2006) probed into long-term relationship between stock market price index in Tehran Stock Market and macro fiscal variables. To attain this purpose, he made use of monthly data between 1369 and 1381 for variables including stock price index, liquidity, currency prices, real bank interest rate. The results showed that a coincident linear relationship exits for stock prices index and macro fiscal variables. The obtained long-term relationship indicated a positive and significant relationship between liquidity and a negative relationship between currency price and real bank interest rate on stock prices index in Stock Exchange Market (3) .

Seyed Hasan at all (2008) taking into account long-term relationship between macro economical variables and stock market price index, using the seasonal data from 1995 to 2007 and regression with distributional pauses, found that the relationship between stock price index and currency prices, real bank interest rate, inflation rate, and oil income was a negative relationship. (1).

Research Variables and Hypotheses

In current research five economical variables were regarded as independent variables and rate increase in total stock index as dependent variables respectively. In following table all variable are defined separately .

Table 1. Research Variables.

Research Variables
Currency price in Free Market
Growth rate in good value index and consumption services
¹ Liquidity Rate growth
Coin price
Daily Oil Export
Total Stock Price Index Increase

Relevant data for each research variables were extracted seasonally from Iran's Central Bank Site (¹ <http://www.cbi.ir/>). In addition economical indicators and Stock Exchange Markets were extracted. Considering the fact that the purpose of current study was to investigate the long-term relationship between fluctuations in Total Stock Prices Index and changes in currency rate, inflation rate, coin rate, inflation rate increase, we have the following hypotheses at hand:

- First Hypothesis: There is a positive relationship between changes in inflation rate and rate increase in total stock prices index .

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- Second Hypothesis: There is a negative relationship between changes in currency rate and rate increase in total stock prices index.
- Third Hypothesis: There is a positive relationship between changes in liquidity and rate increase in total stock prices index.
- Fourth Hypothesis: There is a positive relationship between changes in coin price fluctuation rate and rate increase in total stock prices index.
- Fifth Hypothesis: There is a positive relationship between changes daily oil export extent and rate increase in total stock prices.

Research context and Domain

The time domain of the research the third four months of 2002 to the third three months of 2014 (seasonal data) The number of data exceeds 300 observations. In the cases when the corporations stepped down of the stock market bulletin during the research process, the calculated indices were moderated by the stock exchanges in this regard .

Research Methodology

In this section a comprehensive explanation of research procedures to be presented.

Regression and its results

Using Eview software and entering the collected data , the following results were obtained. The results are presented in Table 2 below.

Table 2. The Results of First Regression.

Prob	T Statistic	Standard Deviation	Co-efficient	Explanatory Variable
0.985	0.0186-	0.315	0.0058-	Currency
0.2936	1.066	104.55	111.38	Inflation
0.0511	2.0157	0.00416	0.0084	Liquidity
0.6092	0.516	0.0008	0.0005	Coin
0.0478	2.0469	1.867	3.822	Oil
$\bar{R}^2 = 0.1146$	Prob(F-statistic)=0.0864			$D_w^2=1.685$

Having investigated self-correlation of the obtained results be means of Q-STATA test it can be inferred that regression analysis has self-correlation in the first and fourteenth ranking. To approve this claim, in addition to observed data from the software, it was necessary to put the residuals data in Excel software to present them better.

Durbin-Watson stat²

Table 3. Regression Results with consideration of self-correlation.

Prob	T Statistic	Standard Deviation	Co-efficient	Explanatory Variable
0.0209	-2.496	0.187	-0.468	Stock(-1)
0.0004	-4.185	0.211	-0.8824	Stock(-14)
0.2113	1.289	0.238	0.307	Currency
0.0029	3.36	85.04	285.922	Inflation
0.0003	4.342	0.0029	0.0127	Liquidity
0.4722	0.73211	0.000584	0.000427	Coin
0.0046	3.172	1.664	5.278	Oil
$\bar{R}^2 = 0.627$	Prob(F-statistic)=0.0001		Dw=2.2	

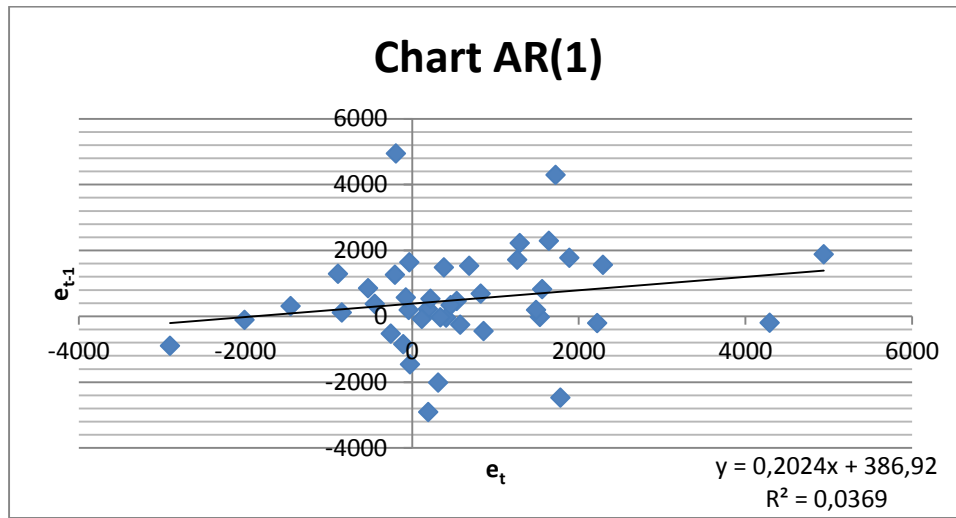


Figure 1. Representation of First ranking self- Correlation.

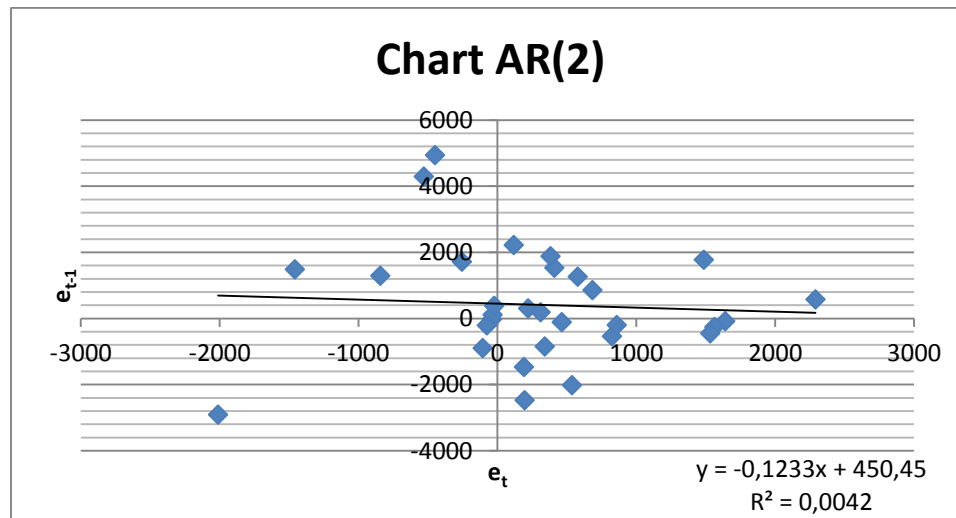


Figure 2. The diagram related to self-correlations in fourteenth ranking.

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Since currency rate and coin rate are insignificant , they can be cancelled from computations.

$$Stock = -695.76 + 0.0147 * Liquidity + 304.617 * Inflation + 4.875 * Oil - 0.4182 * Stock_{t-1} - 0.7724 * Stock_{t-14} + Wt \quad (1-8)$$

Table 4. Final Results of Regression.

Prob	T Statistic	Standard Deviation	Co-efficient	Explanatory Variable
0.0209	-2.496	0.187	-0.4182	Stock(-1)
0.0002	-4.408	0.175	-0.7724	Stock(-14)
0.0018	3.521	86.524	304.617	Inflation
0.000	5.722	0.0026	0.0147	Liquidity
0.0069	2.964	1.644	4.875	Oil
$\bar{R}^2 = 0.614$	Prob(F-statistic)=0.00004			D _w =2.29

As it is indicated in Table Four above, by holding other factors constant, in return for a single unit change in inflation rate, total stock market index increase about 304.6 units. In addition , in return for a single unit change in liquidity. total stock index increases about 0.014 unit .

Investigating Seasonal Changes

Since the data are of time serial kind and seasonal, there exist a great chance for self-correlation investigated in previous section. In this section by the means of imaginative variables , the effect of each season will be investigated subsequently. To do so three imaginative variables (spring, summer, winter) are defined . Final model of previous stage included three explanatory variables: liquidity growth, changes in inflation rate, changes in the amount of daily oil export . So adding three imaginative variables and considering ranking in self-correlation (here the sixth ranking variable is also meaningful) the following variables are obtained :

$$Stock = -1426.61 + 0.0173 * Liquidity + 239.2 * inflation + 6.35 * Oil + 1791.7 * spring - 0.3596 * Stock_{t-1} + 0.358 Stock_{t-6} - 0.694 Stock_{t-14} + w'_t \quad (2-8)$$

Table 5. The Results of Investigating Seasonal Variables.

Prob	T Statistic	Standard Deviation	Co-efficient	Explanatory Variable
0.0328	-2.3	0.156	-0.3596	Stock(-1)
0.0195	2.55	0.141	0.3584	Stock(-6)
0.0002	-4.69	0.148	-0.6939	Stock(-14)
0.0067	3.047	78.54	239.2	Inflation
0.0000	6.886	0.0025	0.0174	Liquidity
0.0006	4.081	1.557	6.354	Oil
0.0134	-2.726	523.3	-1426.62	C
0.0057	3.11	577.7	1797.7	Spring
$\bar{R}^2 = 0.742$	Prob(F-statistic)=0.000017			D _w =2.156

As it is shown in Table five above, the only variable among three imaginative variables that was significant and meaningful was spring . Winter, of course regarded as base , showed its effect only in the form of the distance from Y axis ©. Therefore spring can increase total stock prices index by 371.08.

An important point with regard to presented model, which needs to be made is, is predicting dependent variable. (The moderated R^2 has increased). Also Durbin- Watson test Statistic showed self-correlation of around zero.

Explanatory variables , as it was expected, was greatly significant.

Investigating Landmark Failure in Model

Another important investigation that required to be done is probing into existence of failure point in regressed model. As we know, in some cases the line resulting from regression analysis, in fact, in some points undergoes changes in gradient and distance from Y axis. The underlying reason for the happening concerns with factors such as revolution, war, and innovation in economic structure.

In fact in this case to make prediction researchers can make use of two regression model instead of one so that defining capacity of model increases.

In current study it was concluded, by using Eviews software and Chav Test, that in number 25 data failure occurrence is significant and meaningful (F- statistic = 6.04) which is equal in amount to the first three month of 2010. Among underlying reason for this event, the following reason can be suggested:

1. Increasing given loans from the part of the banks and institutes which by itself increases liquidity.
2. Government Placing more emphasis on job establishment and presenting short-term loans to small agencies.
3. Assigning Fair Securities and Bonds to poor people and supporting financial markets of people (People's attention was drawn to Stock Market)
4. Assigning Governmental corporations in the Stock market on the basis of Article 44.
5. Lowering interest rate for the given loans and directing investments to other markets (which results in liquidity increase).

Conclusion

Since people have access to a different combinations of cash money, securities, bank deposits, bonds, coins, and gold in their capital baskets, changes in money volume, currency rate, inflation rate, interest rate of the bank can affect people's demand for maintaining each of above-mentioned capitals in general and demands for stocks in particular that by itself affects stock prices. It is claimed that stock prices are affected by many macro-economical variables such as inflation rate, liquidity, and the extent of oil exports.

To elaborate on economy measurement model, the researchers made use of AR method. It was shown that the designed model possesses self-correlation in the first and the fourteenth ranking . In addition there was not a significant relationship between currency prices and gold prices with stock prices total index . Therefore the second and the fourth hypotheses are rejected.

One of the variables used in general prediction model was interest rate. This variable, as far as Iranian context is concerned, experiences a somewhat constant trend because of constant interest rate for assigned loans. So it was not included in the model from the very beginning, although previously-carried out researchers approved a significant relationship between this variable and stock prices total index.

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In final designed model in which explanatory variables including inflation rate, liquidity increase rate, and daily export oil exit all variables have positive indices which are correspondent to previous expectations of research hypotheses.

In addition, in order to increase model power in predicting total stock prices index the researchers used imaginative variables. The obtained results indicated a positive significant effect of spring in increasing stock market prices index.

Another important point concerns with changes in predicting model for total stock market prices index in the first three month of 2010.

It is necessary that decision makers and economy policy makers pay more attention to macro economical variables since the little changes in these variables can increase or decrease the general pathways of the country's economy.

Research Limitations

- One of the leading issues in quasi-experimental researches in social sciences domain concerns with the effect of extraneous variables on dependent variables sine it is not possible to control the extraneous variables. Variables including political factors, intra corporation factors such as profitability, benefits distribution policies, and opponents investment opportunities can influence changes in stock market index.
- In current study, data associated with fluctuation in currency prices were restricted only to dollar prices. Due to changes in currency type in corporation transactions in recent years from dollar to Euro, removing the changes attributed to effects of Euro price changes on stock indices in recent years was not possible.

Recommendations

The following recommendations can be made for further research to be done in the future.

I-Investigating the Effects of Macro Economical Variables on the Price Yield of Corporations in Stock Market.

Investigating the Effects of Economical Variables in Different Parts of Industry on Indices Associated With that Particular Industry.

Validating Test of Arbitrage Price Theory in Iran and Measuring Risk Associated with Economical Variables in Stock Yields .

Investigating the Effects of Accounting Variables on Prices Yield of Corporations in Stock Markets .

Appendices

Dependent Variable: STOCK
 Method: Least Squares
 Date: 01/24/13 Time: 21:22
 Sample: 1 43
 Included observations: 43

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-121.0482	335.6237	-0.360666	0.7204
LIQUIDITY	0.008394	0.004164	2.015765	0.0511
INFLATION	111.3802	104.5469	1.065360	0.2936
OIL	3.822179	1.867272	2.046932	0.0478
CURRENCY	-0.005854	0.315354	-0.018564	0.9853
COIN	0.000501	0.000972	0.515577	0.6092
R-squared	0.221590	Mean dependent var		500.3653
Adjusted R-squared	0.116400	S.D. dependent var		1473.115
S.E. of regression	1384.728	Akaike info criterion		17.43318
Sum squared resid	70946464	Schwarz criterion		17.67893
Log likelihood	-368.8134	Hannan-Quinn criter.		17.52381
F-statistic	2.106560	Durbin-Watson stat		1.684650
Prob(F-statistic)	0.086398			

Figure 3. The Results of Table 2.

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Dependent Variable: STOCK

Method: Least Squares

Date: 01/24/13 Time: 21:24

Sample (adjusted): 15 43

Included observations: 29 after adjustments

Convergence achieved after 18 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-614.9589	223.3227	-2.753678	0.0119
LIQUIDITY	0.012692	0.002923	4.342382	0.0003
INFLATION	285.9226	85.04012	3.362208	0.0029
OIL	5.278157	1.663934	3.172094	0.0046
CURRENCY	0.307041	0.238136	1.289351	0.2113
COIN	0.000427	0.000584	0.732116	0.4722
AR(1)	-0.468000	0.187434	-2.496879	0.0209
AR(14)	-0.882404	0.210852	-4.184946	0.0004
R-squared	0.720167	Mean dependent var		375.7803
Adjusted R-squared	0.626890	S.D. dependent var		1722.431
S.E. of regression	1052.108	Akaike info criterion		16.98393
Sum squared resid	23245551	Schwarz criterion		17.36111
Log likelihood	-238.2670	Hannan-Quinn criter.		17.10206
F-statistic	7.720697	Durbin-Watson stat		2.203247
Prob(F-statistic)	0.000117			
Inverted AR Roots	.94+.22i	.94-.22i	.75+.61i	.75-.61i
	.40-.89i	.40+.89i	-.03-.98i	-.03+.98i
	-.46-.89i	-.46+.89i	-.81+.61i	-.81-.61i
	-1.01+.22i	-1.01-.22i		
	Estimated AR process is nonstationary			

Figure 4. The Results of Table 3.

Dependent Variable: STOCK				
Method: Least Squares				
Date: 01/24/13 Time: 21:25				
Sample (adjusted): 15 43				
Included observations: 29 after adjustments				
Convergence achieved after 9 iterations				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-695.7614	223.1597	-3.117773	0.0048
LIQUIDITY	0.014702	0.002569	5.722247	0.0000
INFLATION	304.6173	86.52357	3.520628	0.0018
OIL	4.875091	1.644269	2.964899	0.0069
AR(1)	-0.418215	0.169467	-2.467826	0.0215
AR(14)	-0.772453	0.175216	-4.408570	0.0002
R-squared	0.683130	Mean dependent var		375.7803
Adjusted R-squared	0.614245	S.D. dependent var		1722.431
S.E. of regression	1069.788	Akaike info criterion		16.97030
Sum squared resid	26322255	Schwarz criterion		17.25319
Log likelihood	-240.0693	Hannan-Quinn criter.		17.05890
F-statistic	9.916983	Durbin-Watson stat		2.292779
Prob(F-statistic)	0.000037			
Inverted AR Roots	.93+.22i	.93-.22i	.74+.61i	.74-.61i
	.40-.88i	.40+.88i	-.03+.98i	-.03-.98i
	-.46+.88i	-.46-.88i	-.80-.61i	-.80+.61i
	-.99-.22i	-.99+.22i		
	Estimated AR process is nonstationary			

Figure 5. The Results of Table 4.

Investigating the Relationship Among Some Macro Economical Variables With Aggregated Stock Exchange Prices

Dependent Variable: STOCK Method: Least Squares Date: 01/24/13 Time: 21:27 Sample (adjusted): 15 43 Included observations: 29 after adjustments Convergence achieved after 11 iterations				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1426.616	523.3033	-2.726174	0.0134
LIQUIDITY	0.017362	0.002521	6.886449	0.0000
INFLATION	239.2047	78.53986	3.045648	0.0067
OIL	6.354379	1.557145	4.080789	0.0006
SPRING	1797.712	577.7748	3.111440	0.0057
SUMMER	491.5586	728.6661	0.674601	0.5081
FALL	-162.1508	610.1118	-0.265772	0.7933
AR(1)	-0.359643	0.156188	-2.302632	0.0328
AR(6)	0.358408	0.140519	2.550597	0.0195
AR(14)	-0.693960	0.148092	-4.686006	0.0002
R-squared	0.825017	Mean dependent var	375.7803	
Adjusted R-squared	0.742130	S.D. dependent var	1722.431	
S.E. of regression	874.6657	Akaike info criterion	16.65236	
Sum squared resid	14535762	Schwarz criterion	17.12384	
Log likelihood	-231.4592	Hannan-Quinn criter.	16.80002	
F-statistic	9.953543	Durbin-Watson stat	2.156457	
Prob(F-statistic)	0.000017			
Inverted AR Roots	.94+.19i	.94-.19i	.72+.61i	.72-.61i
	.42+.89i	.42-.89i	-.02+.94i	-.02-.94i
	-.48+.89i	-.48-.89i	-.76-.61i	-.76+.61i
	-.99+.18i	-.99-.18i		
Estimated AR process is nonstationary				

Figure 6. The Results of Table 5.

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